Exhibit 148

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MLRM

XIV and TVIX Notional Flag Review

Jan 2016

EXHIBIT

148

Agenda

Focus Topic

- Proposed Notional Flag Framework
- VIX FDSF Limit Framework

Supporting Material

- VIX Futures, Volumes and Price moves
- Long Term growth of XIV
- Current Flag Framework for VIX products
- XIV and TVIX Notional and creation/redemption trend
- Background on VIX and VIX products
- Mechanism for suspending creations

Additional Information

- CSi Revenue

Focus Topic

Proposed Notional Flag Framework

Proposal:

- Proposal is to increase Total flag by approximately **$1bn** across all volatility regimes and allocate it for **XIV**, keeping capacity for TVIX and other ETNs unchanged.
- Exceeding XIV Flag triggers discussion of mechanisms to **suspend any further outright creations** of the product.
- Flag is set on Notional, which is AUM + Inventory + Swap on the product, or any other product that are deemed as near exact hedge.

Key risk considerations:

Both XIV and TVIX show significant convexity in vega exposure as a result of compounding nature of the product. Backtesting shows that in periods of high volatility daily rebalancing required and/or total amount of the product may take significant portion of the available liquidity and/or be above CS risk appetite.

- Backtesting using 10 day historical path up and down in the each vol regime shows that:
  - max **1 day** rebalance can be **-$41m**
  - total vega on the product can get to **+$159m**, if we have $1.5bn of XIV and no offsetting position in TVIX
- In the extreme scenario where all of the $1.5bn of XIV is issued at the highest VIX level, and no redemption are followed as VIX comes down, vega can grow from $40m to $120m in 3M, and $200m in 6M, $300m in 1Y (based on historical path in 2011).

in $(m)	Proposed			10 day historical path 3M, and 1Y for max utilization of both Flags			10 day based on historical path for $1.5bn in XIV and $0 in TVIX		
VIX Synth*	TVIX	XIV	TOTAL	Max 1 day	Vega growth (up)	Vega growth (down)	Max 1 day	Vega growth (up)	Vega growth (down)
0-15	-300	-1,500	-1,800	14/-41 or 14/-5	from 63 to -33	from 65 to 85	13/-34 or 11/-4	from 104 to 24	from 107 to 129
15-20	-400	-1,500	-1,900	8/-21 or 28/-33	from 37 to -42	from 38 to 95	6/-18 or 21/-25	from 80 to 26	from 82 to 159
20-30	-550	-1,500	-2,050	8/-17 or 22/-13	from 18 to -34	from 18 to 70	6/-13 or 15/-9	from 54 to 20	from 54 to 95
30-45	-650	-1,500	-2,150	6/-12 or 23/-13	from 5 to -27	from 7 to 62	5/-8 or 15/-9	from 37 to 18	from 54 to 95
45+	-750	-1,500	-2,250	7/-6 or 7/-5	from 0 to -14	from 0 to 24	5/-4 or 4/-3	from 29 to 18	from 27 to 46

VIX Futures Volumes:

VIX Futures is growing market and volumes traded across 1st and 2nd VIX Futures have been increasing. It has been observed that increase in market volatility has been accompanied by significant spike in VIX Future volumes. Additionally use of order on close (TAS) functionality on the days of large rebalance can reduce PNL slippage.

- 3M ADV across 1st and 2nd VIX Futures is $200m, with 1 day max $569m
- 3M TAS volume is $10m, with 1 day max $35m
- 3M Average Open interest across 1st and 2nd VIX Futures is $215m, with 1 day max $455m

VIX FDSF Limit Framework

For UK MRC approval

- 3 New Scenario Limits and
- 1 Notional Flag as outlined below
- Scenario definitions were reviewed and approved in prior UK MRC

Limit Name	Limit	Proposed Limit	Level	LE
Equity CSi	-1.5bn	-1.5bn	4	CSi
FDSF US Derivatives CSi	New	-500m	3	CSi
"FDSF Basis" US Flow CSi	New	-225m	3	CSi
"FDSF Basis" US Derivs CSi	New	-300m	3	CSi

"FDSF Basis" scenario is BW spot + SE Vol

in $(m)	Flag Amount in $m		
VIX Synth*	TVIX	XIV	TOTAL
0-15	-300	-1,500	-1,800
15-20	-400	-1,500	-1,900
20-30	-550	-1,500	-2,050
30-45	-650	-1,500	-2,150
45+	-750	-1,500	-2,250

Supporting Material

VIX Futures, Volumes and Price moves

VIX Product and Volume:

- VIX Future is a measure of expected 1M volatility of S&P 500. For example: June 2016 VIX Future is a indicator of today's market's expectation of implied volatility of S&P500 between June and July 2016
- VIX Future is growing market as indicated by the volume – in Oct 08 only $15k of vega was traded using VIX Future, compared to $120m average now with maximum of $560m traded in the 15th Oct 2014
- Since VIX market in 2008 was small there is no clear evidence on volume behavior under prolonged market volatility.
- Common products traded on VIX Futures: Futures, option on VIX Futures and ETP that are linked to performance of VIX Futures.
- VIX Spot Index can not be traded.

VIX Price moves:

- VIX prices can be volatile with largest 1 day up move +9.88 points in 2008 and 6.32 in 2011, and largest 1 day down move is -7.4 points in 2009.
- Table 1 shows maximum move in each year together with maximum and minimum levels.
- 2015 was shown to be a volatile year with maximum one day move up as 5.02 points on 24th Aug'15 as 1st Future went from 19.90 to 25.13 and 2nd went from 18.63 to 22.50, with most of the weight in VIX Synthetic on 1st Future on that date.

VIX Synthetic level and VIX Futures volumes

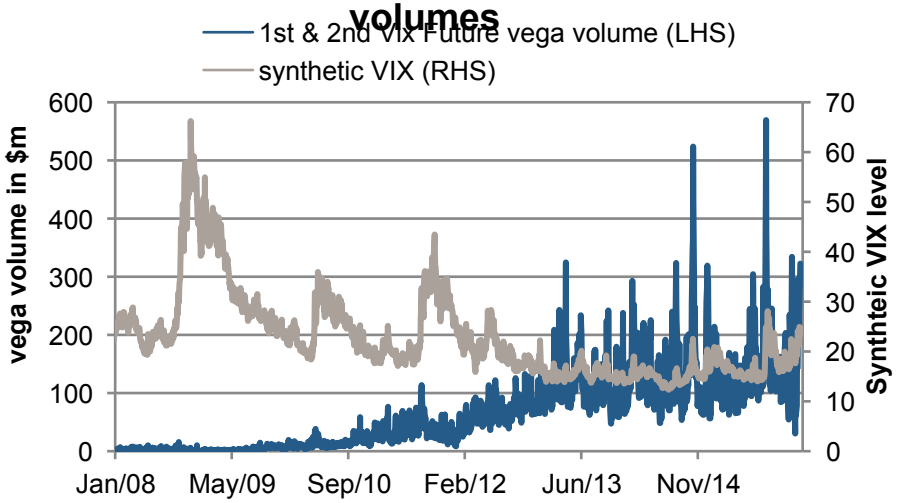


Table 1

VIX Synthetic 1 day moves and Level						
Year	Max 1 Day move down in points and %		Max 1 Day move Up in points and %		Max VIX Synthetic Level	Min VIX Synthetic Level
2008	-5.79	-10%	9.88	25%	19.39	66.23
2009	-7.40	-13%	6.32	13%	22.61	54.95
2010	-4.64	-15%	4.42	18%	18.38	35.95
2011	-5.56	-17%	6.55	24%	17.10	43.48
2012	-4.27	-19%	3.36	15%	15.62	28.33
2013	-2.20	-14%	2.80	20%	13.56	20.17
2014	-2.55	-13%	2.47	12%	12.33	22.54
2015	-3.10	-11%	5.02	25%	14.01	28.08

VIX Futures, Volumes and Price moves (continues)

Volumes on volatile days

- On the days of volatility spikes volumes in VIX Future increase significantly.
- For example on 24th Aug 2015, when VIX 1st Future moved from 19.9 to 25.13, volumes traded in that future increase from $182m to $380m in vega terms.
- TAS volumes have also increased from $10m to $30m around that date.
- Table 2 shows number of days VIX synthetic moves by certain amount in 2013 to 2015.
- Year prior to 2013 had significantly lower volumes as VIX market was still growing and it's suitable for forward looking analysis.
- 2015 was the most volatile year with one 5 points move on 24th Aug that has the largest volumes of VIX futures with $569m of vega traded that day.
- Minimum volumes for days with 2 points move can be as low as $91m.

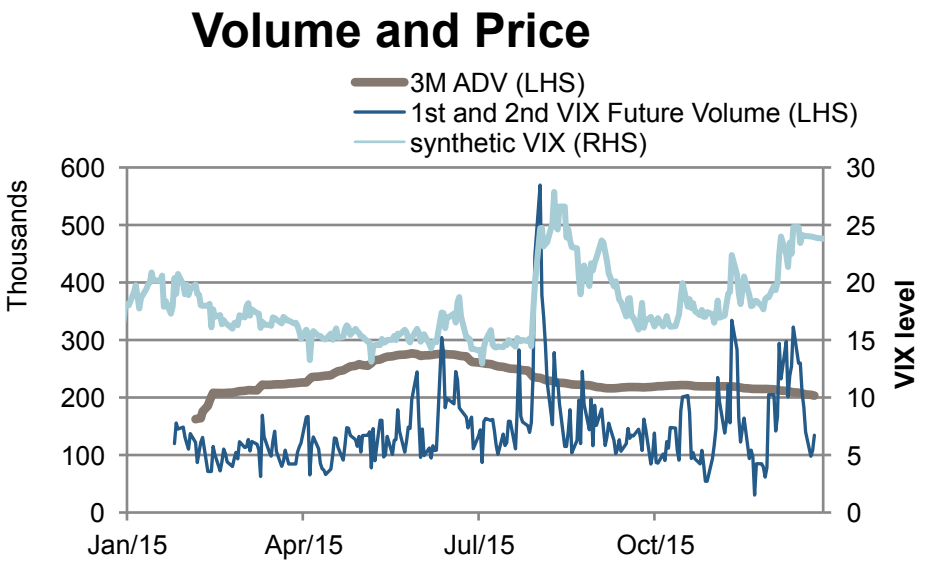


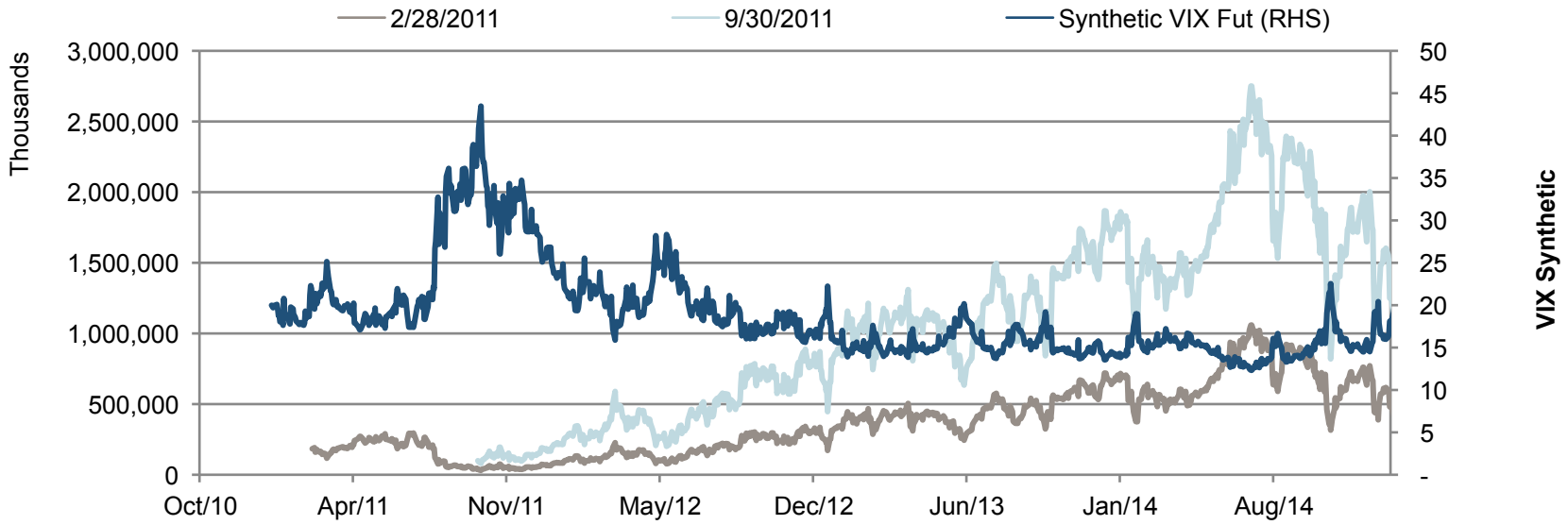
Table 2

1 Day move in VIX Synthetic					
Year	1 point	2 points	3 points	4 points	5 points
Number of days with this size move in VIX synthetic					
2013	26	5	0	0	0
2014	30	3	0	0	0
2015	40	10	2	0	1
Average Volume					
2013	140	204			
2014	211	351			
2015	177	225	278		569
Maximum volume					
2013	255	325			
2014	433	524			
2015	569	446	334		569
Minimum volume					
2013	64	140			
2014	102	179			
2015	91	115	222		569

Long Term growth of XIV

- Backtesting shows that $1.5bn of XIV created at maximum VIX level (in Nov'11) can grow to significant vega amount with no redemptions are made over a long term period.
- Vega can grow from $40m to $120m in 3M, to $200m in 6M, $300m in 1Y and up to $1bn over 3Y.
- This is particular sever path as 2011 was steep contango that equated to 8% monthly yield and contributed to most of the grow in the product along this path.
- This is highly path dependent product, as the same amount created in Feb'11 does not grow to the same levels as it would have been issued at much lower VIX levels.
- Historically we've observed approximately 4 weeks as a maximum period without redemptions, and it's important to note that XIV is cyclical product and client enter multiple creation/redemption cycles within a year.

Testing $1.5bn of XIV launched at two different dates



Current Flag Framework for VIX products

- Proposal will change Flags for XIV and the Total (TVIX and XIV)
- All other flags will remain unchanged

Flags in $(m)										
VIX Synth	TVIX	XIV	TOTAL (TVIX+XIV)	VIIX	TVIZ	ZIV	VIIZ	UVXY	SVXY	TVIX and UVXY
0-15	max 35%	max 100%	-850	-200	-50	-150	-200	+20 (or 10% of Market Cap)		-1,000
15-20	max 40%	max 100%	-1,000	-200	-50	-150	-200			-1,000
20-30	max 50%	max 85%	-1,000	-200	-50	-150	-200			-1,000
30-45	max 65%	max 70%	-1,000	-200	-50	-150	-200			-1,000
45+	max 75%	max 50%	-1,000	-200	-50	-150	-200			-1,000

- Interpolation between regime for TVIX will be linear to avoid sudden jump between the flags as VIX goes into a different level

VIX Synth*	TVIX
0-15	-300
15-20	-400
20-30	-550
30-45	-650
45+	-750

VIX Synth*	TVIX	VIX Synth*	TVIX
15	**-300**	31	-557
16	-320	32	-563
17	-340	33	-570
18	-360	34	-577
19	-380	35	-583
20	**-400**	36	-590
21	-415	37	-597
22	-430	38	-603
23	-445	39	-610
24	-460	40	-617
25	-475	41	-623
26	-490	42	-630
27	-505	43	-637
28	-520	44	-643
29	-535	**45**	-650
30	**-550**		

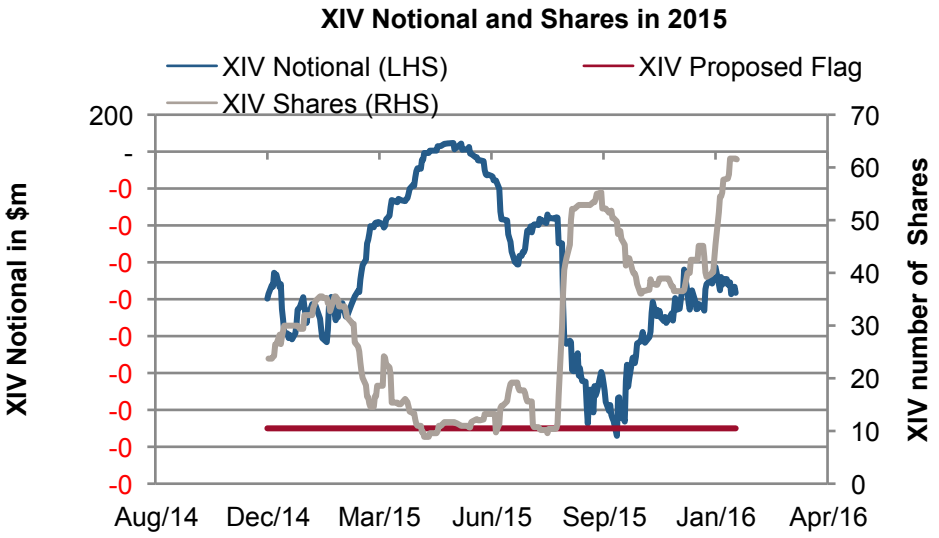
XIV and TVIX Notional and creation/redemption trend

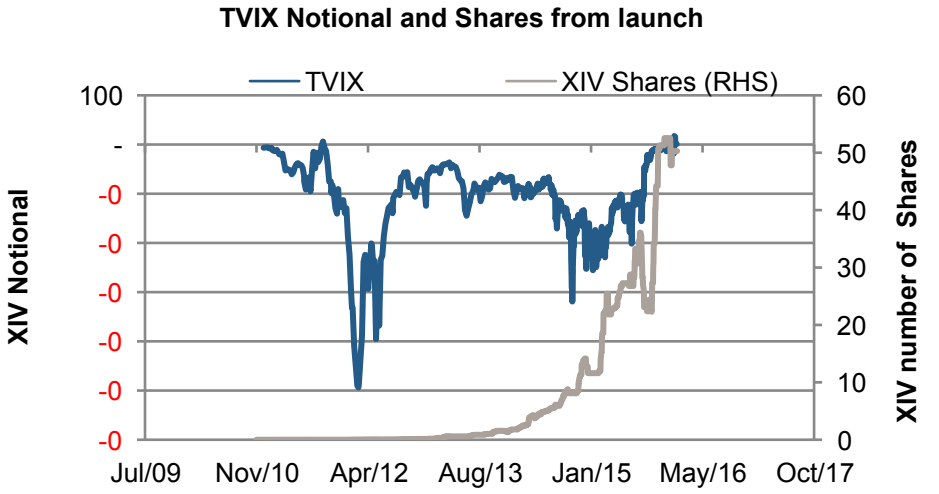
XIV

- XIV Notional has peaked at -$1.54 on 12th Oct'15, above proposed $1.5bn flag.
- From 20th Aug till 13th Oct product had large issuance and no redemptions.
- XIV Notional spiked from -$358m to -$1bn on initial large issuance as VIX spiked and grew further to -$1.54bn on market moves as VIX came down but no redemptions followed.
- XIV price went from $46 to $22 on the initial VIX spike and VIX remained elevated was slow to regain value which stalled redemptions. Current XIV price is $20

TVIX

- TVIX Notional peaked at -$490m on 24th Feb 2012, shortly after CS suspended any further creations of the ETN on 21st Feb 2012.
- Now TVIX is open for "creation for swap" mechanism only.
- Current TVIX AUM is -$440m and Notional -$42mm (AUM + Swaps)





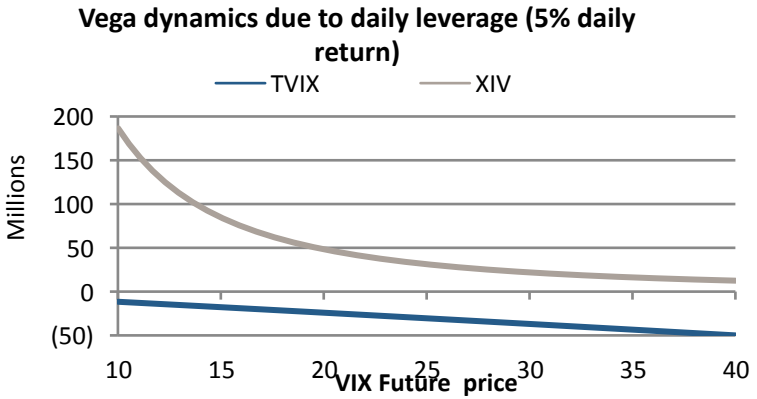
Background on VIX and VIX products

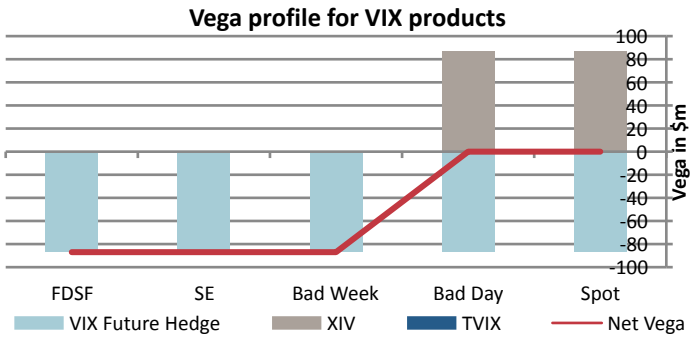
CS VIX ETNs:

- CS has 6 ETNs linked to VIX Futures, with TVIX and XIV as two largest
- TVIX pays daily twice leveraged return of 1st and 2nd VIX Future, weighted to provide a constant one month maturity, current AUM $440m
- XIV pays daily inverse returns of 1st and 2nd VIX Futures (same weighting), current AUM $940m

Risk Profile

- Both TVIX and XIV have highly convex vega profiles due to daily leveraging, that might require significant amount of daily re-hedging using VIX Futures
- XIV vega will grow from $50m, at 20 VIX level, to $180m is VIX Futures drops to 10 as shown on the graph “Vega dynamics due to daily leverage”
- Both ETNs are fully hedged for convexity intra-day, however scenarios that bump volatility more then 100% XIV goes to 0 as it delivers -100% return
- Graph “Vega profile for VIX” shows vega profile for both TVIX and XIV under the scenarios





Suspending creation mechanism

In suspending the product the following key, but not only, consideration will be made:

- Review daily trading volume of 1st and 2nd VIX futures we would initiate the closing assuming volumes of reasonable number (i.e., close to or above ADV of 200mm vega) and prudently talking into consideration external factors as well as discussion with internal control function (Market Risk).
- We would make the announcement consistent with the process of when we closed TVIX creations – announcement is made after the close by the ETN committee and distributed via press release and to our clients.
- Our clients would then have the option of creating XIV on swap going forward via a weekly process already created for TVIX creation (that aims to match maturity of the swap to expected redemption date based), which does not add to Notional amount or risks including scenarios.

Additional Information

CSi Revenue

- There were two issues with revenues highlighted during previous UK RMC :
  1. CCSU keeps all +$87m listed commissions even though it trades on behalf of CSi
  2. -$72m cost booked as revenue in CSi
- FO has addressed the 1st point and transferred $28m of the revenue back into CSi bringing total revenue in CSi from **+$40m** to **+$68m.** This will improve PTI numbers.
- 1st issue cannot be resolved quickly as it will need change to the process within Global Finance, but if cost was to be allocated as cost and not revenue CSi revenue would go up by additional $52m from **$68m** to **$121m.** However this change will not change the PTI number.

YTD 2015 Net Revenues (original)									FINAL	
	Convertibles	Corporate Derivatives	Flow Derivatives	Structured Derivatives	LatAm Derives	Mgmt & Other	EqD Other	Equity Derivatives	1st Commission Transfer	2nd Cost as Revenue
CSSU (FBC)	42	1	87			2		132		
BD Lite (BDL)		26						26		
CS Holdings (FBI)						51		38		
CS Mgmt LLC	2							2		
CSFB Next Fund			1					1		
CSi (161)		15	36	71	9	-72	-7	40	68	121
Garantia (B10)					52			52		
Garantia (B01)					24			24		
Cayman Br (X06)		26					-2	23		
Banco CS Mexico										
NY Br							-1	-1		
London Br						-3		-3		
CS Canada	1							1		
Treasury	-3	-6			-3		3	-10		
Total	**41**	**62**	**124**	**71**	**81**	**-17**	**-7**	**356**		